Highland Beach "Green" Town Hall

Spring 2006 marks the completion of the long-awaited Highland Beach Town Hall. Built to serve the needs of community residents for meeting and gathering space, the handicapped accessible 2,200 square foot facility includes a 552 square feet multi-purpose room with a kitchenette, conference room, two offices, two restrooms, and attic storage area. The facility is a state-of-the-art, environmentally-friendly "green building." Designed by Aris T. Allen and Associates, it exemplifies the commitment of Mayor Crystal Chissell, the Board of Commissioners, and many citizens to environmental protection and restoration.

The construction process began in May of 2005, and was managed by Thomas Point Custom Renovations. From pre-to-post construction, the U.S. Green Building Council, Leadership in Energy and Environmental Design (LEED), Green Building Rating System has been used to measure the extent to which the building meets the highest environmental standards. Green Buildings are sited, designed, constructed and operated to enhance the well-being of occupants, and to minimize negative impacts on the community and natural environment. Grant funding from the Maryland Energy Administration allowed Highland Beach to hire a team of consultants to provide technical expertise in meeting these goals. Highland Beach is pursuing LEED Platinum Green Building rating.

Town Hall Uses:

- Community meetings, gatherings, & activities for Highland Beach and Venice Beach residents
- Board of Commissioners meetings
- Citizens Association meetings
- Meetings of other Highland Beach boards and committees (Planning and Zoning Commission, Historical Commission, etc.)
- Storage of government records

What is Green Building?

Green Buildings:

- Provide a healthier and more comfortable environment
- Improve indoor air quality
- Improve long-term economic performance
- Incorporate energy and water efficient technologies
- Include renewable energy technologies, e.g. photovoltaic (solar) panels
- Use energy efficient construction techniques, e.g., framing that provides more space for insulation
- Use recycled content and renewable materials in their construction
- Reduce construction and demolition waste
- Are landscaped for water and energy efficiency
- Reduce environmental impact
- Are easier to maintain and built to last
- Bring higher resale value

Financial Savings

The consumption and maintenance of buildings are responsible for 40% of U.S. energy use and 30% of wood and raw materials use. Green building construction standards, techniques, and products make buildings more energy efficient by being well insulated and well sealed. Efficient heating/cooling systems, windows, appliances, lighting, and other equipment add to the savings. And with energy prices rising dramatically and non-renewable fuels being depleted, an energy efficient building is an asset we can all appreciate for years to come.

A Healthy Alternative

"With most of us spending more than 80% of our time indoors, Green Building is the healthy, common sense choice for a better life. As it stands now in traditional construction, the quality of our indoor environment is often far more polluted than outdoors due to various building materials, inadequate lighting, and a variety of other variables. According to EPA reports, the air in new homes can be up to ten times more polluted than outside air due to volatile organic compounds (VOCs) and other chemicals used in product manufacturing. Contrarily, homes that follow green building guidelines use healthier paints and building materials, and adhere to stricter gas emission and ventilation requirements improving the quality of a home's indoor environment."
Source: http://www.builditgreen.org/

Highland Beach Town Hall—Green Features

Green Design Features

The Highland Beach Town Hall is designed to be a "Net Zero Energy" facility, that is, under normal use, it can to generate all of the energy it consumes—and even produce excess energy which will feed back into the electric grid, thereby turning the electric meter backwards.

Energy Efficient Features Include:

- High-efficiency Geothermal, Ground Source Heating, Cooling, Air Conditioning System—uses water stored underground at the earth's consistent temperature to heat the building in winter and cool it in summer
- 4-Zone HVAC for individual control of temperature in each room
- On-grid photovoltaic (solar) panels designed to produce 100% of energy demand
- Real time monitoring of energy production and use
- Energy Star roof shingles
- Bio-based super insulation in ceiling, walls, and crawl space
- American Wind Energy purchase, saving 14,953 pounds of CO_2 from entering the atmosphere
- Bio-based pellet stove (renewable fuel)
- Energy efficient tankless hot water heater
- Energy Star lights and appliances
- Ultra low energy consuming refrigerator
- Low energy consuming ceiling fans
- Operable windows for natural ventilation
- Compact florescent lighting
- Occupancy sensors in all main rooms

Indoor Air Quality and Comfort:

- Low VOC non-toxic paint and sealants
- CO_2 monitoring with fresh air intake

Reduced Water Use:

- Ultra low-flow toilets
- Automatic low-flow urinal
- Automatic low-flow faucets

Sustainable Products and Materials Used In Construction Include:

- Forest Stewardship Council (FSC)-certified sustainably harvested (renewable) wood
- Hardiplank siding (recycled content, durable)
- Bamboo wood floors (renewable resource)
- Certified carpeting (recycled content)
- Recycled content: tile, porch, ramp, deck
- FSC wood kitchen cabinets
- Bio-based insulation (renewable resource)

Low Operating Costs Via Energy Efficient Construction Techniques

For example, by using 2"x6" studs for the exterior walls (rather than the more common 2"x4" studs for framing the exterior), this provides space for more insulation. The bio-based insulation used was sprayed on and fills the entire wall cavity, effectively acting as an air seal. (Air sealing is an extra step, usually done to ensure a very tight envelope for a structure, so that thermal energy is not lost.) Additionally, the windows are dual-pane, low-e, argon gas filled, so that they lose as little warm or cool air as possible. The Town Hall has operable windows which can be opened for comfort, and energy efficient fans.

The green "vegetated" roof acts as an extra layer of insulation for the rear two-thirds portion of the building. On the front roof, energy star shingles were installed to reflect more of the sun's rays, keeping the roof cooler in the summer and thereby reducing energy demands.

Stormwater Management:

- Two-thirds of the roof is vegetated with low-growing sedums that can absorb up to 99% of a 1-inch rainfall, and for energy efficiency
- On- and off-site rain gardens with native species also mitigate stormwater runoff to neighboring properties, Oyster Creek, Black Walnut Creek, and the Chesapeake Bay
- Rain barrels capture and store runoff, which is used to water rain garden trees and shrubs
- Porous paving reduces stormwater runoff

Additional Features:

- Skylights allow for enhanced day-lighting of the multipurpose room; day-lighting and outside views from all rooms
- Structured wiring for PC, phone, and cable
- Wireless internet access for residents
- Town Theater

Thank You to Grantors:

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Anne Arundel County
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